



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,850	06/27/2005	Alexander Hofmann	HOFMANN10	2360
1444 7590 08/17/2009 BROWDY AND NEIMARK, P.L.L.C. 624 NINTH STREET, NW SUITE 300 WASHINGTON, DC 20001-5303				
EXAMINER MCNALLY, DANIEL				
ART UNIT		PAPER NUMBER		
1791				
MAIL DATE		DELIVERY MODE		
08/17/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/540,850

**Applicant(s)**

HOFMANN ET AL.

**Examiner**

DANIEL MCNALLY

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17, 20 and 22-35 is/are pending in the application.
- 4a) Of the above claim(s) 25-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17, 20, 22-24, 34 and 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 17, 20, 22-24, and 34-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites the limitation "the laser" in line 11. There is insufficient antecedent basis for this limitation in the claim. Additionally a laser is a device used to emit laser radiation, however the context of the claim suggests the laser transmissive join partner allows the laser welding beam to be transmitted though the join partner rather the laser itself. It is recommended inserting "--welding beam--" after "the laser".

Claim 17 recites "an electromagnetic secondary radiation different from laser radiation and selected from the group consisting of IR and UV radiation". It is unclear if the secondary radiation is produced by the same source as the laser welding beam, it is recommended replacing the language "different from laser radiation" with "--from a source different from a laser--".

Claim 34 recites the limitation "the laser" in line 8. There is insufficient antecedent basis for this limitation in the claim. Additionally a laser is a device used to emit laser radiation, however the context of the claim suggests the laser transmissive join partner allows the laser welding beam to be transmitted though the join partner rather the laser itself. It is recommended inserting "--welding beam--" after "the laser".

Claim 34 recites "an electromagnetic secondary radiation different from laser radiation and selected from the group consisting of IR and UV radiation". It is unclear if the secondary radiation is produced by the same source as the laser welding beam, it is recommended replacing the language "different from laser radiation" with --from a source different from a laser--.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 17, 20, 22, 23, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savitski [US2002/0100540, newly cited] in view of Nishio et al. [JP 63-212081A, newly cited, herein "Nishio"].

Savitski discloses a method of contour welding three-dimensional thermoplastic molded articles. The method comprises selecting and arranging workpieces of transmitting and absorbing materials, providing a radiation source and irradiating a laser beam through the transmitting workpiece to the absorbing workpieces wherein the laser heats the interface between the workpieces to form a weld at a bondline between the workpieces (paragraphs 0027-0034). Savitski teaches a variety of radiation sources can be used including quartz-halogen lamps and laser sources (paragraph 0056) and that the radiation sources can produce radiation in a wide range of wavelengths, however

Savitski is silent as to using both a laser source in addition to a radiant energy lamp to homogenize the temperature field in the welding area.

Nishio discloses a method of welding workpieces. The method comprises providing contacting workpieces (3a, 3b) irradiating a laser beam (L) onto the interface between the workpieces to heat the interface and form a weld, infrared lamps (7) or "secondary radiation" sources are used to irradiate infrared energy to the workpieces at the weld zone to heat the workpieces. Nishio discloses heating using the infrared lamps reduces residual stress in the workpieces. One of ordinary skill would appreciate that irradiation of the workpieces with the secondary radiation would homogenize the temperature field in the weld zone.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of Savitski by including secondary radiation lamps to additionally and simultaneously expose the workpieces as taught by Nishio in order to reduce the residual stresses in the workpieces. Nishio discloses the secondary radiation is infrared radiation, Savitski discloses that polychromatic light sources can produce radiation with a wavelength in the range from ultraviolet to far infrared (paragraph 0057). The secondary radiation source is a polychromatic source that will produce a variety of wavelengths that inherently vary from the wavelength of the laser beam.

With regard to claim 20, Nishio discloses the secondary radiation is infrared radiation, Savitski discloses that polychromatic light sources can produce radiation with

a wavelength in the range from ultraviolet to far infrared (paragraph 0057) which would include wavelengths in the medium-wave and short-wave IR range.

With regard to claim 22, Nishio shows in the Figure that the secondary sources (7) are located on either side of the laser (4) and can be lead ahead of or behind the laser beam.

With regard to claim 23, Savitski discloses that infrared radiation can be focused from an infrared lamp onto a desired region (paragraph 0070).

With regard to claim 35, Nishio shows in the Figure that the secondary radiation from the sources (7) is applied substantially concentrically and synchronously with the laser beam.

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Savitski, Nishio, and further in view of either one of Chen et al. [US2003/0213552, of record, previously cited, herein "Chen"] or Itagaki [JP58163587A, newly cited].

Savitski as modified discloses a method of contour welding three-dimensional thermoplastic molded articles. Applicant is referred to paragraph 4 for a detailed discussion of Savitski as modified. Savitski is silent as to applying the laser or secondary radiation though a clamping device that is transmissive.

Chen discloses a method of transmission laser welding. Chen discloses the radiant energy is passed though a transparent pressing roller that is used to press the welding materials together.

Itagaki disclose a method of transmission laser welding. Itagaki discloses the radiant energy is passed through a transparent wheel (17) that is used to press the workpieces together while being exposed to radiant energy.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of Savitski by applying the laser energy to the workpieces through a transparent clamping device as taught by either one of Chen or Itagaki in order to ensure sufficient contact between the workpieces during the formation of the weld.

#### ***Response to Arguments***

6. Applicant's arguments with respect to claims 17, 20, 22-24 and 34-35 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues the previously cited Chen, Kubota and Korte disclosed using a secondary radiation that was laser radiation rather than a secondary radiation different from laser. Newly cited Nishio discloses welding using laser radiation and a secondary radiation different from laser radiation.

#### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MCNALLY whose telephone number is (571)272-2685. The examiner can normally be reached on Monday - Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel McNally/  
Examiner, Art Unit 1791

/John L. Goff/  
Primary Examiner, Art Unit 1791

DPM  
August 7, 2009